

WHAT IS CLAIMED IS:

1. A data storage device comprising an array of nanotubes as electron sources.
2. The device of claim 1, wherein the nanotubes are carbon-based.
3. The device of claim 1, wherein the nanotubes are boron nitride-based.
4. The device of claim 1, further comprising a phase-change storage layer proximate tips of the electron sources.
5. The device of claim 1, wherein each nanotube electron source is elongated.
6. The device of claim 5, wherein the nanotubes have an aspect ratio greater than 10:1.
7. The device of claim 1, further comprising word and bit lines for addressing the nanotubes.
8. The device of claim 1, further comprising a micromover for positioning the array.
9. A data storage device comprising:
an array of carbon-based nanotubes; and
a phase-change storage layer proximate tips of the nanotubes.
10. A data storage device comprising:
an array of boron nitride-based nanotubes; and
a phase-change storage layer proximate tips of the nanotubes.

11. An electron beam source for a data storage device, the source comprising an array of nanotubes.

12. The electron beam source of claim 11, wherein the nanotubes are carbon nanotubes.

13. The electron beam source of claim 11, wherein the nanotubes are boron nitride nanotubes.

14. The source of claim 11, wherein the nanotubes have an aspect ratio greater than 10:1.

15. The source of claim 11, further comprising word and bit lines for addressing the nanotubes.

16. The device of claim 11, further comprising a micromover for positioning the array.